

Historic, archived document

Do not assume content reflects current
scientific knowledge, policies, or practices.



C78

440
BAP

VOL. 6 No. 24

JUNE 15, 1956



Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

ECONOMIC INSECT SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Economic Insect Survey Section
Plant Pest Control Branch
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS of concern in Merced, Madera and some other counties of California; damaging or threatening crops at Ephrata, Washington; hatching rapidly in western Nevada and becoming more numerous in eastern New Mexico. Nymphs heavy in many areas of Kansas and damage appearing in field margins in Missouri. Hatch continues in Iowa, underway in southeast Minnesota. Populations becoming abundant in margins and roadsides in eastern Oklahoma and locally heavy in southeast and south central Arkansas. (pp. 539, 562). EUROPEAN CORN BORER developing rapidly in Iowa, egg masses in Boone County. Emergence from 5 to 86 percent in Illinois. Pupation over 50 percent in southeast South Dakota, 40 percent in Columbia County, Wisconsin, 28-45 percent in Minnesota. Borer development 10-14 days later than in 1955 in Minnesota and Illinois. (pp. 539, 562).

CORN EARWORM infesting corn in some areas of Kansas, Texas, Oklahoma, Louisiana, Georgia and North Carolina. (p. 540). CHINCH BUG continues to increase in small grains in central and eastern Kansas. Also reported from Mississippi and Oklahoma. (p. 540). ARMYWORMS appearing in central Iowa. Damage reported from areas of Indiana, Virginia, Ariz., Delaware. Heaviest moth flight of season in Illinois and moths continue to appear at Fargo, North Dakota. (pp. 542, 561).

ALFALFA WEEVIL damage continues in infested Eastern States. Larvae appearing in western Nebraska. Damage becoming noticeable in Utah, severe in Churchill and Washoe Counties, Nevada and Owyhee County, Idaho. (pp. 543, 561). PEA APHID continues in damaging numbers in alfalfa in some Colorado counties. Abundant in western Nevada and Illinois. (p. 543). Light to moderate on peas in Delaware, Utah and Wisconsin. (p. 550). SPOTTED ALFALFA APHID medium to heavy in Eddy and Dona Ana Counties, New Mexico and heavy in several Texas Panhandle counties. Mostly low populations in Kansas and Oklahoma. (p. 544). POTATO LEAFHOPPER increasing on alfalfa in South Dakota; widespread in Illinois. (p. 544). SPITTLEBUGS heaviest in years in New York, causing concern in eastern Iowa. (p. 561, 562). Adults appearing in Delaware, Illinois. (p. 544). CUTWORMS damaging corn over northern Missouri; severe on corn on sandy soil in northeast Nebraska. (p. 545).

Next brood of RED-BANDED LEAF ROLLER may require intensive controls in northwest Missouri. (p. 546). Unusually early heavy infestation of FALL WEBWORM on pecan in Louisiana. Also reported from Mississippi. (p. 547). A LEAF ROLLER (*Archips rosana*) causing general damage in orchards in Willamette Valley, Oregon. (p. 547). CATFACING INSECTS severe on peaches in Alabama; abundant at Wooster, Ohio. (pp. 548, 561). Another MEXICAN FRUIT FLY trapped at San Ysidro, California. (p. 548). MEDITERRANEAN FRUIT FLY reported from additional counties of Florida. (p. 548).

MEXICAN BEAN BEETLE adult appearing in Schenectady County, New York and causing serious damage in York County, Pennsylvania. (pp. 550, 561). ONION MAGGOT severe in Iowa and extremely numerous in Ada County, Idaho. (p. 550). STRIPED CUCUMBER BEETLE numerous on cucurbits in eastern South Dakota, Maryland and Delaware. (p. 550). COLORADO POTATO BEETLE heaviest in years in southwestern Idaho. Abundant on untreated tomatoes in eastern Maryland and Delaware. (p. 551).

HORNWORM eggs on tobacco in southern Virginia. (p. 552).

BOLL WEEVIL numerous in lower Piedmont region, North Carolina; considerable increase in fields in Florence, South Carolina area. Heavy populations in several east central Georgia counties and in some spots in delta counties of Mississippi. (p. 554). Early appearance of damaging infestations of BOLLWORMS in cotton in delta counties of Mississippi very unusual; moderate to heavy damage in lower Rio Grande Valley, Texas. (p. 554). PINK BOLLWORM infestations in blooms lower than last year in lower Rio Grande Valley and upper coastal areas of Texas but higher in Laredo section. (p. 555). THRIPS damaging cotton in many areas, heavy on young cotton at Tallulah, Louisiana, in delta counties of Mississippi and Hart and Elbert Counties, Georgia. (p. 555). FLEAHOPPERS more abundant than usual in some Alabama counties, appearing in west Tennessee. (p. 556).

MOSQUITOES very abundant in Weber County, Utah, Dona Ana County, New Mexico and in Jackson, Grand and Routt Counties, Colorado. (p. 558). HORN FLIES continue to increase in Kansas; heavy in areas of Idaho, West Virginia, Texas and Virginia. (p. 558). SCREW-WORM situation in North Carolina may become serious by end of season. (p. 558).

WEATHER summary. (p. 562). Corrections. (p. 553).

ADDITIONAL NOTES. (p. 561). States reporting this week - 41.

Some of more IMPORTANT INSECTS in Florida in 1955. (p. 559).

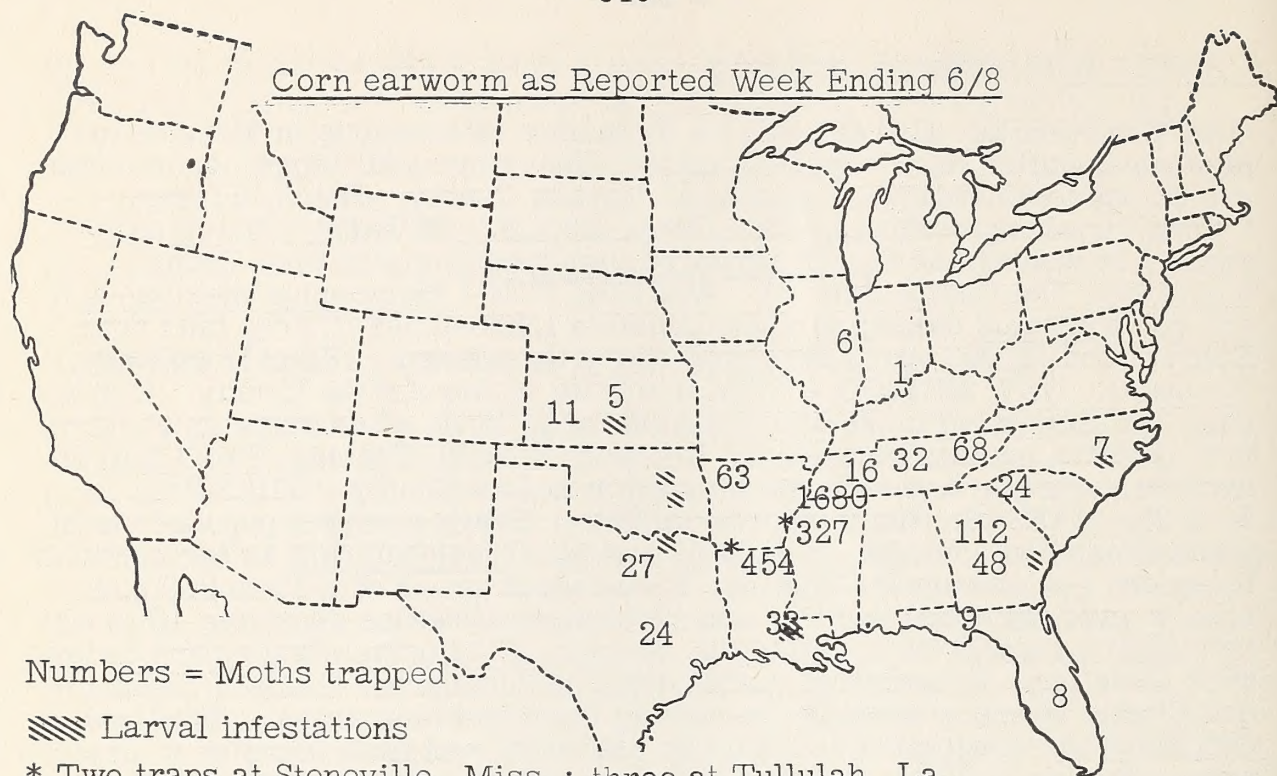
Survey method for SARATOGA SPITTLEBUG. (p. 563).

Reports in this issue are for the week ending June 8 unless otherwise designated.

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - CALIFORNIA - Economic infestations in Merced and Madera Counties may require control. Heavy nymphal mortality in northern Sacramento Valley. Hatching in Nevada County. Hatch in Glenn County requiring control. (Cal. Coop. Rept.). NEVADA - Hatching rapidly in western area. Camnula pellucida hatching in Elko County. (Gallaway, Del Curto, June 2). WASHINGTON - Melanoplus mexicanus and M. bivittatus damaging approximately 1,200 acres of crop land near Ephrata and 12,000 acres irrigated crops threatened. (Kamal, Delaney, Brannon). NEW MEXICO - Light in alfalfa in Rio Arriba County. (Durkin, June 2). Becoming more numerous on range lands after rains on eastern side of State. Heavy populations in areas of Union County. From 5 to 35 nymphs per square yard in an infestation in Lea County. (GHC Proj., June 2). KANSAS - Hatch about complete. Heavy nymphal populations in many areas and adult M. mexicanus and M. femur-rubrum as far north as Riley and Pottawatomie Counties, northeast area. From 15 to 200 per square yard (nymphs) in Riley and Wabaunsee Counties and from 15 to 80 per square yard in Geary, Morris, Marion, Dickinson, Harvey and Sedgwick Counties. Destructive infestations in Sudangrass fields in Chautauqua County where grasshoppers moving from hatching areas. (Matthew). OKLAHOMA - Becoming abundant in roadsides and field margins in eastern area. Twelve to 20 M. differentialis per square yard in pecan orchards of Muskogee County. (Coppock). MISSOURI - Damage beginning to appear in margins of some fields, particularly noticeable in north Missouri. (Kyd, Thomas). WISCONSIN - Larger numbers of newly-hatched grasshoppers appearing on lighter soils in Adams, Buffalo, Columbia, Dane and Sauk Counties; mostly M. bivittatus and M. differentialis. (Wis. Ins. Bul.) MINNESOTA - Melanoplus bivittatus hatching in southeast area; M. femur-rubrum eggs in all stages with 75 percent in coagulate. (Pearson). ILLINOIS - Nymphs average 2 per 100 sweeps in roadside grass and margins in northwest, 22 in central and 38 in eastern section. (Ill. Ins. Rept.). TEXAS - Medium widespread on grasses and grains in Denton County. (Chada). General medium infestations on corn, some very heavy, in Palo Pinto County. (Lindsey). Heavy locally on pastures in Nacogdoches County. (Clifton).

EUROPEAN CORN BORER (Pyrausta nubilalis) - SOUTH DAKOTA - Pupation greater than 50 percent in southeastern area. (Hantsbarger). MINNESOTA - Pupation proceeding rapidly; 28 to 45 percent. Borer development about 10-14 days later than 1955. Corn from 3 to 10 inches tall. (Minn. Ins. Rept. Serv.). ILLINOIS - Emergence ranges from 5 to 86 percent; pupation from 70 percent to complete. Occasional eggs in much of area north of Highway 36. In general, borer development approximately 10 days later than 1955 and corn growth about same. This makes the situation still serious and many of more advanced fields in northern half of State will almost certainly warrant insecticide in late June or early July. (Ill. Ins. Rept.). WISCONSIN - Forty percent pupation in Columbia County. (Wis. Ins. Bul.). NEW JERSEY - Laying eggs on sweet corn in Cape May County on May 30th. One egg mass per 10 plants. (Ins.-Dis. News.).



CORN EARWORM (Heliothis zea) - TEXAS - Heavy widespread on corn in Fannin County. (Green). OKLAHOMA - Damage to whorls of corn 17-19 percent in Checotah area, 4-5 percent in Bixby area. (Coppock). KANSAS - Adults, larvae and eggs in one corn field in Harvey County. Twenty-eight percent infestation of whorls. (Matthew). LOUISIANA - Heavy in silking corn in East Baton Rouge and West Baton Rouge Parishes. Sixty percent infestation some fields. (Oliver). GEORGIA - Infestations 15-25 percent on treated sweet corn in Tattnall County; field corn 90 percent infested. (Johnson). NORTH CAROLINA - Averaged 3.6 eggs per silk tip on 15 silks at Faison. Ears with drying silks have at least one larva. (Farrier).

CORN FLEA BEETLE (Chaetocnema pulicaria) - NEW JERSEY - Widespread in Cape May County May 30; remains low in Burlington County. (Ins.-Dis. News.). DELAWARE - Numerous on sweet corn generally; severe bacterial wilt some areas. Conspicuous numbers of insect also on field corn. (Milliron). ILLINOIS - From 80-100 percent of corn in southern half of State shows feeding. From 257 beetles per 100 plants in southeast to 0 in northwest. (Ill. Ins. Rept.).

CHINCH BUG (Blissus leucopterus) - KANSAS - Populations continue to increase in many small grain fields of central and eastern areas. From 40 to over 100 nymphs per foot of row in Riley, Geary, Morris, Dickinson, Harvey, Marion and Sedgwick Counties. Some movement to adjacent row crops indicated. (Matthew). MISSISSIPPI - Damage to sorghum in Oktibeha County. (Hutchins). OKLAHOMA - Thousands, mostly nymphs, per sweet corn plant in one Tulsa County field. (Coppock).

BILLBUGS - WISCONSIN - Damage appearing in some corn fields in Rock and Walworth Counties. (Wis. Ins. Bul.). SOUTH DAKOTA - Calendra sp. damaging 10 acres of corn in Lincoln County. (Hantsbarger).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Common in sorghums in Lincoln, Okfuskee and McIntosh Counties. Scattered populations, no damage. (Coppock).

CORN ROOT WEBWORM (Crambus caliginosellus) - VIRGINIA - Practically destroyed stand of corn in two 5-acre fields in Augusta County. (Woodside, Morse, Morris).

DATE MITE (Oligonychus pratensis) - TEXAS - Medium to heavy widespread on corn in Uvalde and Zavala Counties. (Richardson).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - SOUTH CAROLINA - Damaging corn and beans at Spartanburg. (Smith). MISSISSIPPI - Destroyed half of stand on 6-8 acres of corn in Jackson County. (Bond). GEORGIA - Light on corn and peanuts in Cook County. (McGill).

SLUGS - PENNSYLVANIA - Heavy damage to corn in Montour County. (Gesell).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Deadhearts in sugarcane averaged 133, 33 and 63 in 3 parishes. Second generation expected soon. (Oliver).

SEED-CORN MAGGOT (Hylemya cilicrura) - MINNESOTA - Damaging sweet corn plantings seriously in south central district. (Minn. Ins. Rept. Serv.). WISCONSIN - Found in 86 percent of fields between Dane and Burnett Counties; 6.7 percent infestation in infested fields. (Wis. Ins. Bul.).

WIREWORMS - WISCONSIN - Wheat wireworm (Agriotes mancus) unusually large populations damaging small grain in some areas of Taylor and Wood Counties. (Wis. Ins. Bul.). MARYLAND - Two percent of plants killed in 30 acres of corn in Wicomico County. (U. Md., Ent. Dept.).

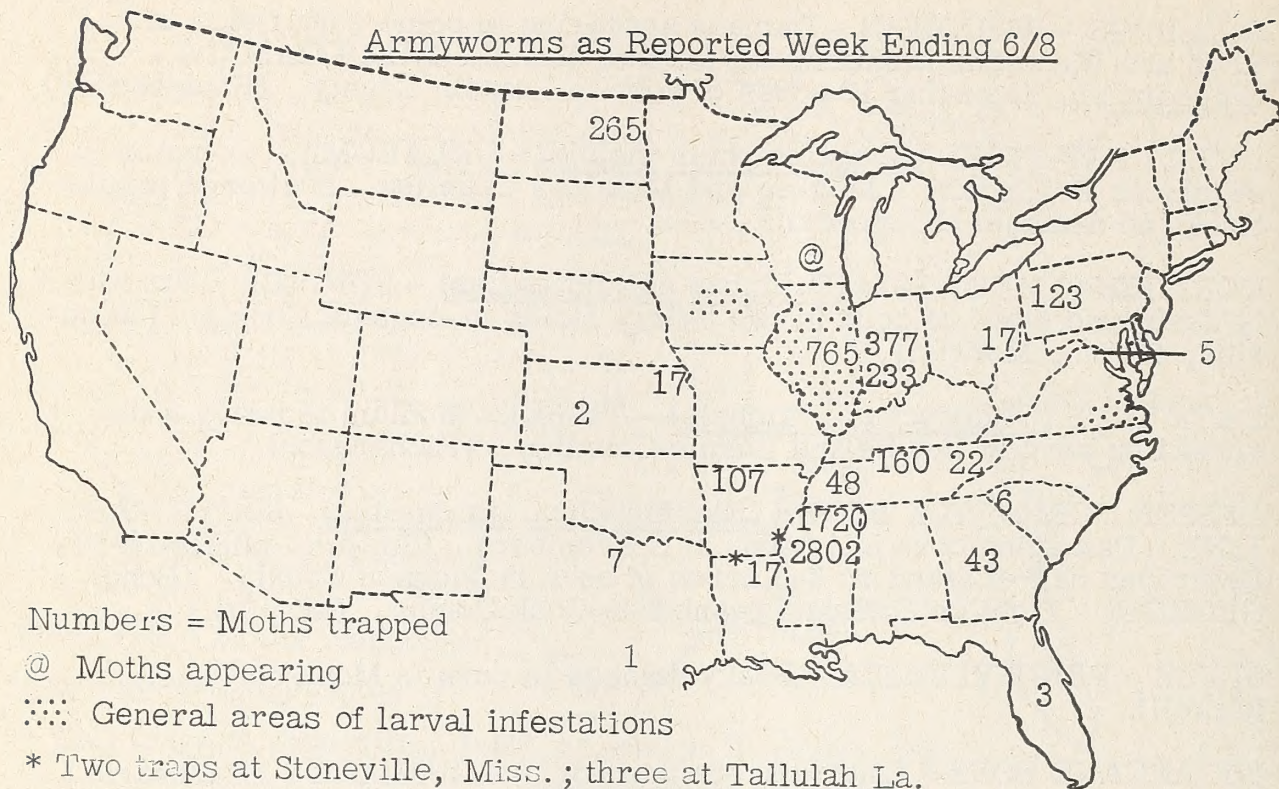
EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Pupae first found this season June 4; two weeks later than for past three years. Beetle flight will be considerably delayed in western New York. (Tashiro).

MORMON CRICKET (Anabrus simplex) - NEVADA - Adults in Eureka County. (Del Curto, June 2).

A SAWFLY (Dolerus sp.) - OREGON - Sawfly reported on fescue in CEIR 6(22):478 identified by B. D. Burks as Dolerus sp., prob. D. collaris. (Larson).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Seriously damaging alfalfa in a few local areas of Franklin and Linn Counties; 5 to 20 adults per square foot some fields. (Matthew).

Armyworms as Reported Week Ending 6/8



Numbers = Moths trapped

@ Moths appearing

:::: General areas of larval infestations

* Two traps at Stoneville, Miss.; three at Tallulah La.

ARMYWORM (Pseudaletia unipuncta) - SOUTH CAROLINA - Has not caused damage this season. (Nettles). INDIANA - Moderate to severe injury in areas of Knox County; larvae up to 3/4 grown. About 2,000 acres sprayed in Gibson County. (Hamilton). ARIZONA - Outbreak in Bermuda grass seed fields at Yuma, June 1. Det. F. Werner. (Ariz. Coop. Rept.). VIRGINIA - Injury to corn, small grains and alfalfa in southeastern area. Many growers applying insecticides. (Brubaker, Greenwood, Hofmaster). DELAWARE - Injuring corn in many scattered locations. Moderate to heavy damage advanced cereal fields some areas. (Milliron). NORTH DAKOTA - Adults continue to appear at Fargo but no larvae. (N. D. Ins. Rept. Serv.).

ARMYWORMS - ILLINOIS - Per linear foot in small grain: .67 in west-southwest, .95 in east-southeast, 2.17 in southwest, and .25 in southeast. Per 100 sweeps of 15-inch net in grass: 25 in northwest, 15.2 in northeast, 6.0 in central and 7.0 in east. Heaviest moth flight of season. (Ill. Ins. Rept.). MARYLAND - Treatment planned in some grain fields in Dorchester and Caroline Counties. (U. Md., Ent. Dept.).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Infesting pasture in East Baton Rouge Parish. (Oliver).

A LEAFROLLER (Platynota stultana) - ARIZONA - Building up in some alfalfa on Yuma Mesa, May 31. May be serious later. (Ariz. Coop. Rept.).

GREEN CLOVERWORM (Plathypena scabra) - VIRGINIA - About 1 per sweep in alfalfa in Pulaski and Rockbridge Counties. (Morris).

ALFALFA WEEVIL (Hypera postica) - NEW JERSEY - New-generation adults in southern area. Heavy larval damage continues in southern area and slight damage as far north as New Brunswick even in sprayed fields. Light damage to vetch in Burlington and Cape May Counties. (Ins.-Dis. News.). DELAWARE - Adults and larvae attacking new growth from Glasgow southward, severe in Smyrna area. (Milliron). PENNSYLVANIA - Peak of larval injury not reached in southeast area. (Menusan). All stages in Lancaster County. No leaves on some plants in some fields. (Pepper). MARYLAND - Some damage to second-cutting alfalfa in Talbot County, but generally second growth is free from weevil and damage should be about over this year. (U. Md., Ent. Dept.). VIRGINIA - Found in Augusta County for first time; Bedford, Campbell and Pittsylvania infested last week; 70 counties now known infested. Damage continues in several counties: severe on clover and alfalfa in Goochland County, heavy some alfalfa in Charlotte County, severe damage after first cutting in Accomac County, considerable adult damage to Ladino clover in Caroline County. (Morris, Rowell et al.). SOUTH DAKOTA - Found in Bennett County for first time; 3 larvae per 50 sweeps and occasional adult. (Hantsbarger). NEBRASKA - Larvae averaging 15 per 10 sweeps in 6 western counties. Five larvae per 10 sweeps in Grant and Hooker Counties. Some damage. (Andersen). NORTH DAKOTA - Very light infestations in infested southwestern counties. (N. D. Ins. Rept.). NEVADA - Severe damage to fields treated too late for adults and in untreated fields in Churchill and Washoe Counties. First adult emergence May 29, Washoe County. (Gallaway). CALIFORNIA - Light in alfalfa in eastern Shasta County; first record for county. (Cal. Coop. Rept.). UTAH - Damage becoming more noticeable in many counties. (Knowlton).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ILLINOIS - Adults emerging in northern half of State where larvae infesting about 60 percent of red clover stems. (Ill. Ins. Rept.). PENNSYLVANIA - Tops of red clover killed in many fields in Lancaster County; larvae mature. (Pepper).

PEA APHID (Macrosiphum pisi) - NEVADA - Numerous to economic in most alfalfa fields in western area. (Gallaway, June 2). COLORADO - Damaging numbers continue in alfalfa in Weld, Larimer, Boulder, Adams and Montrose Counties. (Exp. Sta.). OKLAHOMA - Common in eastern area alfalfa; numerous as spotted alfalfa aphid in some fields. (Coppock). NEBRASKA - Ten to 34 per 10 sweeps in panhandle area. (Andersen). MINNESOTA - Remains low. (Minn. Ins. Rept. Serv.). ILLINOIS - Per 100 sweeps: northwest 2,850, northeast 15,800, central 9,000, east 60,000, southwest 1,900 and southeast 100. Approximately one-fourth of aphids in central area diseased. (Ill. Ins. Rept.). PENNSYLVANIA - Heavy in clover and alfalfa in Lancaster County but hay ready for harvest. (Pepper). MARYLAND - Thirty-five per sweep in alfalfa in Washington County. (U. Md., Ent. Dept.).

SPITTLEBUGS - PENNSYLVANIA - Adults in southeast. Heavy in northern counties of this region. (Menusan).

SPOTTED ALFALFA APHID - NEW MEXICO - Medium to heavy in untreated fields in Eddy and Dona Ana Counties. Very light infestations in San Juan County. Predators numerous in untreated fields but probably not keeping aphid below damaging levels. (Durkin, June 2). UTAH - General in Grand County alfalfa with moderate damage some fields. (Knowlton). TEXAS - Heavy on alfalfa in Donley, Lamb, Swisher, Floyd, Dickens, Wichita, Hockley, Armstrong, Randall, Crosby, Lubbock Counties. Light in Parker County. (Chada). KANSAS - Found in nearly all fields in Wabaunsee, Riley, Pottawatomie, Morris, Geary, Dickinson, Harvey and Sedgwick Counties but no populations of economic importance; 0 to 23 per sweep. (Matthew). OKLAHOMA - Continuing low in eastern area, except increasing in some Arkansas River bottom fields. (Coppock). Increasing in Payne County. (Fenton).

POTATO LEAFHOPPER (Empoasca fabae) - SOUTH DAKOTA - Increasing on alfalfa; 24 per 100 sweeps in one field in Brookings County. (Hantsbarger). ILLINOIS - Adults per 100 sweeps: northwest 43, northeast 56, central 215, east 175, southwest 25, southeast 70. Ten nymphs per 100 sweeps in central area. (Ill. Ins. Rept.). MICHIGAN - Collected at East Lansing May 30. (Hutson). OKLAHOMA - Increasing in alfalfa in Payne County, 60 per 100 sweeps. (Fenton)* MARYLAND - Adults on alfalfa in Frederick County May 29. Det. D. Young. (U. Md., Ent. Dept.). DELAWARE - Small numbers in alfalfa. (Milliron).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - VIRGINIA - About 12 per sweep in one alfalfa field in Rockbridge County, 2 per sweep in one field in Pulaski County. (Morris). DELAWARE - First adult at Smyrna, June 4. (Milliron). RHODE ISLAND - Becoming active in alfalfa in Kingston area; 1 to 3 masses per 15 plants. (Steve). ILLINOIS - First adults in central and eastern areas. Nymphs per 100 stems of clover and alfalfa ranged from 0 to 64. (Ill. Ins. Rept.).

PLANT BUGS - ILLINOIS - Nymphs of Lygus lineolaris, Adelphocoris lineolatus and A. rapidus average 375 per 100 sweeps in northwest area and 240 in central. (Ill. Ins. Rept.). NEBRASKA - Average of 40 A. lineolatus nymphs per 10 sweeps in Platte Valley and panhandle areas. (Andersen).

LYGUS BUGS - WASHINGTON - From 15 to 30 nymphs per 25 sweeps in birdsfoot trefoil at Pullman. (Johansen). UTAH - Very abundant in Grand County alfalfa. (Knowlton). SOUTH DAKOTA - Increasing in alfalfa; up to 92 nymphs and 11 adults per 50 sweeps. (Hantsbarger). NEBRASKA - Fifty-five nymphs per 10 sweeps in alfalfa in Platte Valley and panhandle areas. (Andersen) ILLINOIS - Lygus lineolaris adults in clover and alfalfa ranged from 24 to 110 per 100 sweeps of 15-inch net. (Ill. Ins. Rept.).

CLOVER MITE (Bryobia praetiosa) - NEVADA - Some damage to alfalfa in Churchill County. (York, June 2). SOUTH DAKOTA - Numerous on alfalfa west of Missouri River. (Hantsbarger).

*Adults per 100 sweeps in legumes: Muskogee County 0-30, Okmulgee 120. (Coppock).

CUTWORMS - DELAWARE - Peridroma margaritosa prevalent in alfalfa at Smyrna. Damaging corn at Milton. Agrotis ypsilon injuring corn near Milton. (Milliron). MARYLAND - Variegated cutworm causing moderate damage to alfalfa in Dorchester County and unidentified species moderately damaging corn in Montgomery County. (U. Md., Ent. Dept.). GEORGIA - Moderate on peanuts in Tattnall and Candler Counties. (Johnson). MISSOURI - Damage to corn common over most of northern half of State. Light in many fields, heavy in few. Damage mostly by A. ypsilon. (Kyd, Thomas). NEBRASKA - Approximately 150,000 acres sprayed for A. orthogonia in Cheyenne County. Prepupae in margins of wheat fields range from 4 to 15 per linear foot. Distribution extends into Scotts Bluff and Box Butte Counties. (Andersen). Severe infestations of Euxoa detersa in sandy corn fields in northeast area. Some entire fields destroyed. (Roselle). SOUTH DAKOTA - Six P. margaritosa larvae per 50 sweeps in alfalfa in Bennett County. (Hantsbarger). UTAH - Damaging spring grains and alfalfa in Wayne County; damage spotted elsewhere. (Rogers, Knowlton).

GARDEN WEBWORM (Loxostege similalis) - ARIZONA - Very noticeable in a few alfalfa fields on Yuma Mesa, May 31. (Ariz. Coop. Rept.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ILLINOIS - Increased on soybeans; from .75 to 6.6 per 6 feet of row. (Ill. Ins. Rept.). LOUISIANA - Twenty per 100 sweeps in soybeans in Assumption Parish. (Oliver). MARYLAND - General on soybeans and garden beans on Eastern Shore. (U. Md., Ent. Dept.).

BLISTER BEETLES - MISSOURI - Appearing in large numbers in alfalfa and other crops. (Kyd, Thomas).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - UTAH - Abundant in some areas of Washington County. (Knowlton).

THRIPS - OKLAHOMA - Frankliniella occidentalis very numerous on alfalfa in Stillwater area. (Fenton). GEORGIA - Moderate on peanuts in Tattnall and Candler Counties. (Johnson).

FRUIT INSECTS

PEAR PSYLLA (Psylla pyricola) - CALIFORNIA - Found first time in Sonoma County at Healdsburg on June 1. Light infestations appearing for first time in commercial pear orchards in Scott Valley, Lakeport and Upper Lake vicinities of Lake County. (Cal. Coop. Rept.). OREGON - Young second-brood nymphs beginning to appear on under sides of pear leaves in Jackson County, June 5. (Capizzi).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MARYLAND - Damage to peaches conspicuous in Prince Georges County. (U. Md., Ent. Dept.).

CODLING MOTH (Carpocapsa pomonella) - OREGON - First larvae entered unsprayed pear fruits about June 2 in Jackson County. (Capizzi). MINNESOTA - Adults and egg masses found in LaCrescent area during week of June 3. (Minn. Ins. Rept. Serv.). ILLINOIS - Ninety percent of moths emerged in Carbondale area. Weather unfavorable; moth entrances variable. (Chandler). MICHIGAN - Fifty percent pupated at Grand Rapids. (Hutson). OHIO - Peak emergence May 30. Temperatures favorable for oviposition June 6 and 7. (Cutright). INDIANA - Bait trap catches and emergence extremely light in Vincennes area. Weather unfavorable for moth activity. (Hamilton). Could give considerable trouble in early fall in Orleans area if corrective measures not applied. (Marshall). PENNSYLVANIA - Emergence slow in Adams County. (Asquith). Fifty percent emerged in Snyder County. (Gesell). MARYLAND - Eggs laid at Hancock. (U. Md., Ent. Dept.). DELAWARE - Emergence at least 50 percent. (Stearns). NEW JERSEY - Build-up of moth activity. First entry in Burlington County June 4, normally about May 25-30. (Ins.-Dis. News.). WEST VIRGINIA - First entries in apple Jefferson and Berkeley Counties. (Hamstead).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Infestations medium on peach trees in San Miguel and Mora Counties. (Durkin, June 2). COLORADO - Building up rapidly on summer hosts in Larimer County. (Exp. Sta.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ARIZONA - Large numbers on apple trees at Cactus, Graham County. (Ariz. Coop. Rept.).

AMERICAN PLUM BORER (Euzophera semifuneralis) - DELAWARE - Destructive to apple at Bridgeville. (Stearns).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - DELAWARE - More than 50 percent pupating. (Kelsey).

A LEAF MINER (Lithocolletis sp.) - OREGON - Mines abundant in some apple orchards and hawthorn in Jackson County. Many pupae. (Gentner).

SAN JOSE SCALE (Aspidiotus perniciosus) - GEORGIA - Marks on peaches in packing sheds much more prevalent than usual. (Snapp, June 1).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - ILLINOIS - Moths emerging in Carbondale area. (Chandler). OHIO - Larvae feeding on foliage fairly common. (Cutright). MICHIGAN - Hatched in orchards about Paw Paw. (Hutson). MISSOURI - Infestation heavy enough to warrant preparation for intensive controls for next brood in northwest area. Larvae mostly full-grown. (Wkly. Rpt. Fr. Grs.).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - Between first and second broods in Carbondale area. (Chandler). OHIO - Less abundant on peaches than in 1955. First eggs deposited about June 4. (Rings). First injuries on apple May 31 at Wooster. Now fairly common. (Cutright). WISCONSIN - Normal numbers in unsprayed orchards. Almost none

where control practised. (Wis. Ins. Bul.). MISSOURI - Activity somewhat more intense than preceding years in northwest area. (Wkly. Rept. Fr. Grs.). MARYLAND - Damage to plum in Prince Georges County conspicuous. (U. Md., Ent. Dept.). NEW JERSEY - Activity in peaches essentially over in south and rapidly diminishing in north. (Ins.-Dis. News.). MASSACHUSETTS - Adults forty-five percent less than expected at Waltham. Considerable injury in unprotected orchards. (Crop Pest Cont. Mess.).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - OREGON - Severe foliage injury to orchards in Hood River not protected by dormant sprays. (El-lertson).

PEACH SILVER MITE (Vasates cornutus) - WASHINGTON - Increasing and damaging peaches in some orchards in Yakima Valley. (Luce).

SPIDER MITES - PENNSYLVANIA - Building rapidly on apple in Adams County. (Asquith).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OREGON - Populations beginning to increase in some pear orchards in Jackson County. (Capizzi).

EUROPEAN RED MITE (Metatetranychus ulmi) - NEW JERSEY - Mostly eggs and nymphs in south; adults in north. (Ins.-Dis. News.). MINNESOTA - Few found. (Minn. Ins. Rept. Serv.). MICHIGAN - Adults beginning to appear in plum orchards about Paw Paw. (Hutson).

WALNUT CATERPILLAR (Datana integerrima) - MISSISSIPPI - Appearing on pecan trees in Harrison County. (McGehee).

PECAN NUT CASEBEARER (Acrobasis caryae) - GEORGIA - Larvae injuring pecan nuts in Mitchell County. (Snapp, June 1). OKLAHOMA - Percent of clusters containing eggs ranged from 0 to 13.5 in 5 counties. (Coppock).

FALL WEBWORM (Hyphantria cunea) - LOUISIANA - Heavily infesting plum, persimmon and pecan trees over southern half of State. Unusually early for heavy infestations. (Oliver). MISSISSIPPI - Appeared on pecan and wild persimmon trees in Harrison and other coast counties about May 25. Webs noticeable by June 1. (McGehee).

A LEAF ROLLER (Archips rosana) - OREGON - Causing general damage in orchards throughout Willamette Valley. High percent of pupae, but no adults observed by June 7. (Ritcher).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Numbers of adults laying eggs on grape leaves in Graham County. (Ariz. Coop. Rept.).

THRIPS - ARIZONA - Damage to new growth on citrus noticeable in some groves at Yuma on May 31. Treatment now general. (Ariz. Coop. Rept.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Activity increased and expected to continue. Infestations expected to build up earlier than in recent years. (Pratt, Thompson, Johnson).

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - Activity increased. Trend expected to continue until early July. (Pratt, Thompson, Johnson).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - A female trapped in San Ysidro, San Diego County on June 6. This is second fly captured in locality in 1956 and third captured in California. All taken within 1.25 miles of Mexican border at Tijuana. (Cal. Coop. Rept.).

FLORIDA RED SCALE (Chrysomphalus aonidum) - FLORIDA - Activity at high level. Expected to increase further until peak reached late June. (Pratt, Thompson, Johnson).

CATFACING INSECTS - ARIZONA - Stink bug nymphs severely infesting peach on experimental plantings at Mesa, Maricopa County, May 31. Four to six nymphs per peach. (Ariz. Coop. Rept.). MARYLAND - Some catfacing of peaches in neglected orchards. (U. Md., Ent. Dept.). OHIO - First-generation eggs of stink bugs hatching at Wooster; Euschistus tristigmus particularly abundant in Wooster area. The plant bug, Neolygus omnivagus, maturing and entering peach orchards in northern area. (Rings). ALABAMA - Leptoglossus phyllopus causing severe damage to peaches. Large numbers of Nezara viridula on peaches and garden crops in southern area. (Ruffin).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Recent extensions of infestations, reported between June 1-12, include Ft. Ogden, De Soto County; Cleveland, Charlotte County; Bradenton, Manatee County; Melbourne, Brevard County; and Wabasso, Indian River County. (P. P. C.)

TRUCK CROP INSECTS

CABBAGE MAGGOT (Hylemya brassicae) - OREGON - Fairly numerous in broccoli seed beds in Gresham and Sauvies Island areas, June 1. (Hanna). PENNSYLVANIA - Serious damage to cabbage in York County. (Pepper). MASSACHUSETTS - First eggs at Waltham May 13. Breaks previous record for late appearance. (Whitcomb). WISCONSIN - Adults laying eggs on cabbage in Kenosha County. About twelve eggs per plant. (Wis. Ins. Bul.).

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Damaged approximately ten percent of cabbage heads in two fields in Tulsa and Muskogee Counties. (Coppock).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW JERSEY - Heavy adult appearance expected. (Ins. -Dis. News.).

CABBAGE APHID (Brevicoryne brassicae) - PENNSYLVANIA - Heavy infestation on early southern plants in Bucks County. (Menusan).

BEET WEBWORM (Loxostege sticticalis) - COLORADO - Heavy flights May 31 in Fort Collins and Greeley; 791 and 2500 trapped respectively. Egg deposition underway in Larimer County. (Exp. Sta.). NEBRASKA - Averaged 10 adults per square yard. Distribution from North Platte westward to Kimball and northward to Alliance in Box Butte County. (Andersen).

CUTWORMS - UTAH - Seriously reduced sugar beet stands in large acreage in Carbon County. (Knowlton).

BEET LEAFHOPPER (Circulifer tenellus) - NEVADA - Three per 35 square feet on sugar beets in Churchill County. (Gallaway). WASHINGTON - Adults appearing in sugar beet fields May 26 in Benton County. (Kamal, Klostermeyer).

SPINACH LEAF MINER (Pegomya hyoscyami) - COLORADO - Infestations in commercial plantings of spinach in Fremont County. (Ext. Serv.).

HARLEQUIN BUG (Murgantia histrionica) - DELAWARE - Adults on kale at Ellendale. (Milliron).

BLISTER BEETLES - SOUTH CAROLINA - Unusually heavy damage to tomatoes in Ridgeland. (Tate). FLORIDA - Adults of Epicauta sp. averaging 25 per plant on field-planted tomatoes in Duval County. (Mayeux). TEXAS - Very heavy in some localities of Palo Pinto County. (Lindsey). NEW MEXICO - Adults of Epicauta maculata causing severe damage to tomatoes in Lea County. (Durkin, June 2).

BEAN LEAF BEETLE (Cerotoma trifurcata) - VIRGINIA - Adults worse in Chesterfield County area than in past several years. (Matheny).

SEED-CORN MAGGOT (Hylemya cilicrura) - DELAWARE - Considerable loss of lima beans at Newark. (Milliron).

PEA APHID (Macrosiphum pisi) - VIRGINIA - Light in localized area of Chester, Chesterfield County. Less damage present than in past 9 years in locality. Syrphid fly larvae numerous earlier. Lady beetles scarce. (Matheny). Built up to high population on garden peas on Eastern Shore before harvest. (Brubaker, Greenwood, Hofmaster). DELAWARE - Light to moderately abundant on terminal growth in most commercial pea fields throughout the State, regardless of treatment. (Milliron). UTAH - Generally moderately abundant on canning peas. Occasional damage. (Knowlton). WISCONSIN - Not generally distributed on peas. Present in groups or colonies indicating relatively recent infestations and population increases. Counts ranged from less than 1 to 6.4 per sweep in six counties surveyed. (Wis. Ins. Bul.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - PENNSYLVANIA - Adults plentiful, feeding injury on beans serious in York County. (Pepper). Common, just beginning to lay eggs in Northampton County. (Menusan). GEORGIA - Heavy infestation on lima beans in Harris County. (Jordan). DELAWARE - Increased on lima beans north of Georgetown. (Milliron).

ONION MAGGOT (Hylemya antiqua) - IOWA - Severe and warranting treatment in commercial plantings. (Harris). IDAHO - Extremely numerous in Ada County. (Roberts, Portman).

SQUASH BUG (Anasa tristis) - SOUTH CAROLINA - Unusually abundant on watermelons this season in Chesterfield, June 2. (Willis). GEORGIA - Heavy infestation on cantaloups in Madison County. (Johnson).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - SOUTH DAKOTA - Numerous in Brookings area upon squash, melons and cucumbers. (Hantsbarger). WISCONSIN - Egg-laying underway. (Wis. Ins. Bul.). MARYLAND - Abundant on cantaloups, squash and cucumber in Salisbury area and troublesome on cucumbers in Calvert County. (U. Md., Ent. Dept.). RHODE ISLAND - First adults observed on melon plants in Kingston area. (Steve). DELAWARE - Remains problem on untreated cucurbits in Kent and Sussex Counties. (Milliron).

A LEAF MINER (Liriomyza sp.) - ARIZONA - More abundant at Yuma May 31 on cantaloup than at any time this year. Parasite count is up in most fields. (Ariz. Coop. Rept.). NEW MEXICO - Damage medium to heavy on beans, tomatoes, cucumbers and melons in Dona Ana County. (Durkin, June 2).

CUCUMBER BEETLES - VIRGINIA - Adult damage is severe in commercial cantaloup planting in King William County. (Matheny).

TORTOISE BEETLES - MARYLAND - Adults of Metritona bicolor and Agroiconota bivittata are doing light to moderate damage to sweetpotato

foliage in Wicomico County. (U. Md., Ent. Dept.).

TUBER FLEA BEETLE (Epitrix tuberis) - NEBRASKA - Averaging 10 per 10 sweeps on early potatoes and cull piles in Gering and Scottsbluff areas. (Andersen).

TOMATO RUSSET MITE (Vasates lycopersici) - GEORGIA - Injuring tomatoes in home garden in Dougherty County. (Osburn, June 1).

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Found in sufficient numbers in two tomato fields at Yuma to require treatment. (Ariz. Coop. Rept.).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Abundant on potatoes from Smyrna southward. (Milliron).

LEAFHOPPERS (Empoasca sp.) - NEW MEXICO - Causing light to medium damage to tomatoes and melons in Dona Ana County. (Durkin, June 2).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adults average 140 per 100 sweeps on matrimonyvine in Larimer County. Egg deposition 3 per leaf. (Exp. Sta.). NEBRASKA - Few nymphs appearing on early potatoes and potato cull piles in Scotts Bluff and Gering areas. (Andersen).

POTATO LEAFHOPPER (Empoasca fabae) - PENNSYLVANIA - A few adults on potatoes in Northampton and Lancaster Counties. (Menusan, Pepper). NEW YORK - None observed. (Gyrisco).

POTATO FLEA BEETLE (Epitrix cucumeris) - SOUTH DAKOTA - Very abundant in Brookings area on potatoes and tomatoes. (Hantsbarger). WISCONSIN - Damaging tomato transplants in Dane County, June 1. (Wis. Ins. Bul.). DELAWARE - Feeding on potatoes generally. (Milliron). RHODE ISLAND - Considerable damage on young potato and tomato plants. (Steve).

POTATO APHID (Macrosiphum solanifolii) - DELAWARE - Severe on tomatoes most locations from Smyrna southward; increasing on potatoes. (Milliron). MARYLAND - Moderate numbers on tomatoes, Wicomico County. (U. Md., Ent. Dept.).

FLEA BEETLES - PENNSYLVANIA - Severe damage to truck crops in Northampton and Schuylkill Counties. (Menusan). Noticeable damage to truck crops in southwestern area. (Udine). MARYLAND - Tortoise beetles and flea beetles numerous and damaging sweet potato foliage in sections of lower Eastern Shore. (U. Md., Ent. Dept.). NORTH DAKOTA - Adults causing noticeable damage to vegetables in Fargo area. (N. D. Ins. Rept. Serv.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - VIRGINIA - Larvae much heavier than usual in Chesterfield County. (Matheny).

Causing noticeable injury to Irish potatoes on Eastern Shore where control not used. (Brubaker, Greenwood, Hofmaster). DELAWARE - Destructive on untreated tomatoes generally. Required control on potatoes in Sussex County. (Milliron). MARYLAND - Abundant on untreated potatoes and tomatoes on lower shore. Showing up in Prince Georges County. (U. Md., Ent. Dept.). WASHINGTON - Adults becoming active on night-shade at Pullman. (Johansen). IDAHO - Heaviest in last several years in southwestern area. Severe injury developing in untreated fields in Owyhee and Canyon Counties. (Portman, Bechtolt, Johnson):

BEET ARMYWORM (Laphygma exigua) - ARIZONA - Severe enough on castor beans in 80 acres at Scottsdale to treat, May 28. (Ariz. Coop. Rept.).

SLUGS - IOWA - Damaging strawberries in some areas. Slugs about half grown. (Harris).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - MISSOURI - Heavy in all parts of State. (Wkly. Rept. Fr. Grs.). IOWA - Just becoming evident. (Harris).

STRAWBERRY WHITEFLY (Trialeurodes packardi) - INDIANA - Rendered large patch of strawberries worthless in Orleans area first part of May. (Marshall).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - WISCONSIN - Nymphs averaged about 4 per ten strawberry plants in Kenosha and Dane Counties, June 1. Nymphs heavy on spinach in Jefferson County. (Wis. Ins. Bul.).

TOBACCO INSECTS

HORNWORMS (Protoparce spp.). -NORTH CAROLINA - First eggs of season in Granville County, June 6. (Chamberlin). VIRGINIA - Eggs found on newly-set tobacco in Pittsylvania County. First record of season. Large number of adults trapped might indicate trouble. Records from three traps for the week ending June 2 were Protoparce sexta 23, and P. quinque-maculata 327. (Dominick).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Moderate to heavy on tobacco in Tattnall, Candler and Emanuel Counties. (Johnson).

GREEN PEACH APHID (Myzus persicae) - NORTH CAROLINA - Occasional light spotted infestations on tobacco in Granville County. (Chamberlin). VIRGINIA - Infestations are light and spotty in Pittsylvania County. (Dominick). GEORGIA - Moderate to heavy on tobacco in Tattnall and Candler Counties. (Johnson).

STINK BUGS - GEORGIA - Nezara viridula and Euschistus servus moderate on tobacco in Tattnall County. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - NORTH CAROLINA - Generally heavy this year in Nash County. (Taylor). VIRGINIA - Infestations range from light to heavy on newly set tobacco in Pittsylvania County. (Dominick). Heavily damaging leaves of tobacco transplants in a Halifax County field. Larvae and or wireworms are damaging stems of tobacco transplants in a field in Halifax County. (Rowell, Witcher). MARYLAND - Generally abundant on plants in beds in southern area. Some heavy damage. Also infesting plants in field in Calvert and Prince Georges Counties. (U. Md., Ent. Dept.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - MARYLAND - Light to heavy larval damage to tobacco plants in beds in Calvert County. Also noted on 10 farms in this county. Increasing as a pest of plants in beds in State. (U. Md., Ent. Dept.).

CABBAGE LOOPER (Trichoplusia ni) - NORTH CAROLINA - Attacking tobacco on two farms in Columbus County. (Raper, Rabb).

Corrections: CEIR 6(2):13, 20. The note on the BOSTRICHID (Sinoxylon ceratoniae) should be revised as follows: CALIFORNIA - Specimens taken May 25, 1955 from movie prop equipment made in Egypt of native wood and stored at Paramount Studio, Hollywood were determined as this species. In late May, 1955 all the equipment was fumigated. Subsequent inspections have failed to show any live insects. (Wilcomb). In view of this information the report of S. ceratoniae in California should not be regarded as an established infestation.

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Numerous in lower Piedmont but not as abundant in counties more to east. Very few in Raleigh, Winton and Goldsboro areas. (Cott. News Lett., June 1). SOUTH CAROLINA - Average infestation in treated fields, 8 percent; untreated fields, 19 percent. (Cott. Lett.). Survival in cages to June 8 at Florence was 6.7 percent compared with 4.3 at same date in 1955. Rains causing considerable increase in number of weevils appearing in fields in Florence area. (Walker et al.). GEORGIA - Light on cotton in Madison County, moderate in Hart and Elbert, heavy in Tattnall, Candler, Emanuel, Laurens, Washington and Hancock Counties. (Johnson). ALABAMA - Of 17 fields examined in 6 east central counties, 13 found infested at rate of 192 weevils per acre for infested fields. (Tyus). TENNESSEE - Feeding signs showing up in southwestern counties but little damage to terminal growth. (Locke). MISSISSIPPI - Found in most fields in delta counties with some spots having above 1,000 weevils per acre, but majority of acreage still relatively free. (Merkl, Furr et al.). LOUISIANA - Found in 39 of 44 fields examined in Tallulah area at rate of 420 weevils per acre for all fields. This compares with 222 for same week in 1955 and 419 in 1954. Percent survival in cages to June 8 was 1.34 compared with 1.2 to same date in 1955 and 3.4 in 1954. (Gaines, Pfrimmer et al.). OKLAHOMA - Eight per hundred feet of row in one field in Choctaw County. Also appearing in fields in LeFlore County. (Stiles). TEXAS - Survival in cages at Waco to June 8 was .06, to same date in 1955, 9.1. Average of 36 weevils per acre in 13 untreated fields and 5 per acre in 10 treated fields in McLennan and Falls Counties. (Parenchia et al.). Local heavy infestations continue to build up in untreated cotton in lower Rio Grande Valley. (Deer). Light infestations as far north as upper coastal area. (Fuller, Martin).

BOLLWORMS (Heliothis spp. et al.) - SOUTH CAROLINA - Total of 142 H. zea moths taken in light trap at Florence compared with 112 for previous week. Totals for H. virescens were 52 and 1. (Walker et al.). MISSISSIPPI - Eggs and larvae in many fields in delta counties. Controls in some fruiting fields. Early appearance of damaging numbers very unusual. (Merkl, Furr et al.). LOUISIANA - Moths in many fields in Tallulah area. In experimental cotton 7.4 eggs and 1.1 larvae per 100 terminals. (Gaines, Pfrimmer et al.). TEXAS - Moderate to heavy damage in lower Rio Grande Valley. (Deer). Occasional egg in Waco area. (Parenchia et al.). Infestations light over most of State except lower valley. (Martin, Fuller). ALABAMA - Adults of H. zea in a great many fields. Eggs varied from 10 to 100 per 100 feet of row. Terminals in 100 feet were examined. Half-grown larvae of H. virescens from few fields. (Ruffin).

GRASSHOPPERS - OKLAHOMA - Threat to cotton in some sections. (Stiles).

LYGUS BUGS - ARIZONA - Beginning to build up in stub cotton fields in Maricopa County. (Ariz. Coop. Rept.).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - In lower Rio Grande Valley and coastal bend counties significant decrease in infestations in blooms compared with last year. In the four valley counties pink bollworm was found at rate of 11 per 100,000 blooms in 1956 compared with 32 per 100,000 in 1955. In coastal bend counties counts were 155 in 1955 and 27 in 1956. In Laredo section (Webb and Zapata Counties) the situation is opposite. The figure for 1956 is 460 compared with 36 last year. (PBW Cont. Proj.).

APHIDS - GEORGIA - Aphis gossypii light to moderate on cotton in Tattall and Candler Counties. (Johnson). NEW MEXICO - A. gossypii and A. medicaginis generally light and spotty in cotton in Eddy and Dona Ana Counties. (Durkin, June 2). OKLAHOMA - Less than one per plant in McIntosh and Okmulgee Counties. (Coppock). NORTH CAROLINA - Have built up in a few areas but lady beetles are numerous. (Cott. News Lett.). Two to 59 per 20 plants in Union County. (Spyhalski).

SPIDER MITES - SOUTH CAROLINA - Reported in Edgefield-Newberry-Saluda area. (Nettles). TENNESSEE - Small numbers many fields. First appearance of season. (Locke). ALABAMA - Of 17 fields examined in 6 east central counties, 7 were lightly infested. (Tyus). TEXAS - Continue to increase in lower Rio Grande Valley. (Deer). NEW MEXICO - Very light and spotty in Dona Ana and Eddy Counties. (Durkin, June 2). ARIZONA - Prevalent in Yuma area May 31 but Orius building up. Tetranychus telarius moderate on 40 acres of cotton at Eloy, June 2. Large numbers of predatory thrips. (Ariz. Coop. Rept.).

THRIPS - NORTH CAROLINA - Fourteen to 200 per 20 plants on cotton in Union County. (Spyhalski). SOUTH CAROLINA - Damaging cotton in Piedmont counties. (Nettles). GEORGIA - Heavy in Hart and Elbert Counties. (Johnson). ALABAMA - Light to medium damage in all fields checked in 6 east central counties. (Tyus). TENNESSEE - Considerable damage in west Tennessee. Infestations light to moderately heavy with controls in more heavily infested fields. (Locke). LOUISIANA - Most older fields out of injury stage in Tallulah area but some younger fields receiving severe injury. (Gaines, Pfrimmer et al.). MISSISSIPPI - Found in practically all fields in delta counties. Most older cotton past damage stage but young untreated cotton has severe damage to leaves and terminals. (Merkl, Furr et al.). TEXAS - Light in most areas where early-season control complete, but heavy in some areas where controls underway. (Fuller, Martin). Injury in many late-planted fields in McLennan and Falls Counties. (Parenchia et al.). NEW MEXICO - Frankliniella sp. and Thrips tabaci damage in cotton light to heavy but general in Dona Ana and Eddy Counties. (Durkin, June 2). ARIZONA - Damage light at Yuma and Eloy. Thrips blasting squares in some fields in Pinal and Pima Counties, unusual damage. (Ariz. Coop. Rept.).

A LEAF MINER (Liriomyza sp.) - NEW MEXICO - Damage light to medium in cotton in Eddy and Dona Ana Counties. (Durkin, June 2).

FLEAHOPPERS - TEXAS - Psallus seriatus averaged 6.2 per 100 terminals in 13 untreated and 2.2 in 10 treated fields in McLennan and Falls Counties. (Parenchia et al.). Fleahoppers light in most areas where early-season control completed, but heavy in some areas where controls still in progress. (Martin, Fuller). TENNESSEE - Appearing in west Tennessee. (Locke). ALABAMA - P. seriatus in larger numbers than usual in Butler, Conecuh, Baldwin and Escambia Counties. (Ruffin).

FLEA BEETLES - GEORGIA - Systema blanda moderate on cotton in Hart and Elbert Counties. (Johnson). SOUTH CAROLINA - Damaging cotton in Piedmont counties. (Nettles). TENNESSEE - Considerably heavier than last week in west Tennessee. (Locke).

CABBAGE LOOPERS - TEXAS - "Ragging" cotton severely in some areas of lower Rio Grande Valley. (Deer). ARIZONA - Increasing in many areas. (Ariz. Coop. Rept.).

CUTWORMS - GEORGIA - Heavy on cotton in Oconee County. (Jordan).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE ENGRAVER (Ips pini) - PENNSYLVANIA - Very severe on dying pines in Schuylkill County. (Menusan).

A TWIG MOTH (Petrova virginiana) - DELAWARE - Common on Virginia pine at Petersburg. (Milliron).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - MINNESOTA - Pre-pupae abundant in Brainerd area. Apparently rodent predation has not altered prospect for defoliation of oaks, birch and other hosts late this summer. (Minn. Ins. Rept. Serv.).

SATIN MOTH (Stilpnotia salicis) - OREGON - Caused almost complete defoliation of cottonwood trees in Forest Grove area, June 1. (Goeden).

PINE NEEDLE MINER (Exoteleia pinifoliella) - PENNSYLVANIA - Heavy infestation on red pine in a plantation in Westmoreland County, May 23. (Jeffrey).

PINE SPITTLEBUG (Aphorophora parallela) - MARYLAND - Light to heavy numbers of spittle masses on young loblolly pines on Eastern Shore. (U. Md., Ent. Dept.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - PENNSYLVANIA - Some spring killing in pine in southwest. (Udine).

LARCH SAWFLY (Pristiphora erichsonii) - MINNESOTA - Cocoon found in northern area on May 21 - June 1. Emergence will be about June 15 on the Mesabi Range and Superior National Forest. (Minn. Ins. Rept. Serv.).

EASTERN SPRUCE GALL APHID (Chermes abietis) - RHODE ISLAND - Hatching of eggs during week. Young nymphs feeding on new growth of spruce in Kingston area. (Steve).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - PENNSYLVANIA - Migration heavy in northeast and other areas. (Gesell). MASSACHUSETTS - Hatching in Amherst and vicinity by May 18. Early appearance indicates moderate abundance. (Bourne).

ELM LEAF BEETLE (Galerucella xanthomelaena) - ARIZONA - Heavy on Chinese elm in Mesa area. Some trees lost a third of foliage. (Ariz. Coop. Rept.). PENNSYLVANIA - Injury becoming conspicuous on elm in northeastern area. (Gesell). MARYLAND - Larvae damaging elm foliage in Calvert County. (U. Md., Ent. Dept.).

ELM SAWFLY (Cimbex americana) - WASHINGTON - Adults emerging since May 28 on willow at Pullman; large numbers active. (Johansen).

A LEAF ROLLER (Fascista cercerisella) - OKLAHOMA - Extensive damage to redbud in State. (Howell).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Young larvae mining leaves. (Steve).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - First recorded infestation at Fullerton, Orange County on May 17. (Byers, Harper). MICHIGAN - Adults at Flint May 28. (Hutton).

CANKERWORMS - SOUTH DAKOTA - Numerous reports from western areas of defoliation of elm trees. (Hantsbarger). WISCONSIN - Defoliating elms in Rock County. (Wis. Wkly. Bul.). WEST VIRGINIA - Larvae of Alsophila pometaria defoliating oaks, hickory and sourwood in Barbour County. (Dorsey, Hansen).

BUCK MOTH (Hemileuca maia) - DELAWARE - Defoliating white oaks at Petersburg. (Milliron).

BROWN HEADED ASH SAWFLY (Tomostethus multicinctus) - MINNESOTA - Stripping ash in Twin Cities area. (Minn. Ins. Rept. Serv.).

A TIP MOTH (probably Rhyacionia frustrana) - VIRGINIA - Damaging loblolly pines in several counties in southeastern area. (Miller, Grayson).

BAGWORM (Thyridopteryx ephemeraeformis) - VIRGINIA - Severe and general on American arborvitae at Richmond. Eggs hatching and larvae present. (Matheny). OKLAHOMA - Early instars active in central and eastern areas on ornamentals. (Howell). Very abundant in few pecan orchards in Okemah area. Common on elm in eastern area. (Coppock).

A SCALE (Kermes pubescens) - OKLAHOMA - Numerous on oak in Caddo County and in Wewoka area. (Fenton).

APHIDS - IDAHO - Extremely heavy on Colorado blue spruce in Gooding and Jerome Counties. (Portman). DELAWARE - Hamamelistes spinosus very destructive to foliage of birch at Petersburg and Wilmington. (Milliron).

MITES - NEW MEXICO - Tetranychus telarius severe problem on ornamentals in Las Cruces. (Durkin, June 2). NORTH DAKOTA - Heavy infestation on evergreens around homes in Fargo. (N. D. Ins. Rept.). VIRGINIA - Infestation on blue spruce in Franklin County very heavy. Heavy damage by T. telarius on shrubs in Wythe County. (Rowell). Mites on ornamentals in Richmond area heavier than for many years. (Matheny).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - First adults of season in Rowan County, June 1. (Warren). VIRGINIA - Reported in Princess Anne and Norfolk Counties for the first time this year. (Raine). RHODE ISLAND - First adults of season in Kingston. (Steve).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Seriously annoying in Weber County and in several other areas. (Knowlton). NEW MEXICO - Very abundant in Mesilla Valley, Dona Ana County. (Durkin, June 2). COLORADO - Very high populations in Jackson, Grand and Routt Counties. Communities planning control programs. (Ext. Serv.). RHODE ISLAND - Adult Aedes cantator abundant in Matunuck area. Biting rate of 12 per 2 minutes. (Steve).

HORN FLIES (Siphona irritans) - IDAHO - Heavy on beef and dairy cattle herds where controls excluded. (Roberts). TEXAS - Heavy widespread populations on all cattle in Mason County. (Garrett). KANSAS - Populations continuing to build up in central and north central areas. Counts of 120 to 180 per animal. (Matthew). WEST VIRGINIA - Numerous on cattle over State. (Dorsey, Hansen). VIRGINIA - Very heavy in parts of Appomattox and Henrico Counties. (Turner).

SCREW-WORM (Callitroga hominivorax) - NORTH CAROLINA - Infestation in Yadkin County general. Expected to become serious by end of season. (Smith, Conaway).

FLIES - NEW MEXICO - Musca domestica and Siphona irritans very numerous around livestock pens in Dona Ana County. (Durkin, June 2). ARKANSAS - Counts per animal on a dairy herd in Pulaski County as follows: horn fly 10-450; horse flies 0-15; stable fly less than 1. (Warren). IOWA - Stable flies appeared. (Harris). MINNESOTA - Black flies plentiful in Ely week of May 28. (Minn. Ins. Rept. Serv.). VIRGINIA - Deer flies severe in northern neck area. (Matheny).

STICKTIGHT FLEA (Echidnophaga gallinacea) - GEORGIA - Heavy on chickens in Lincoln County. (McGee, June 1).

CATTLE GRUBS - IDAHO - Abundant on dairy and beef cattle herds near Preston. (Roberts). VIRGINIA - Hypoderma lineatum medium on beef cattle in area of Fairfax County. (Beard).

TICKS - MISSISSIPPI - Amblyomma americanum found on many animals of 512 sprayed in Jasper County. Several specimens of A. maculatum also found. (Neel, Chadwick).

SHEEP SCAB MITE (Psoroptes equi ovis) - VIRGINIA - Found on 733 of 1,471 sheep inspected in State during April and 94 of 94 sheep inspected in Virginia during May. Controls applied. (Va. Livestock Health Bul.).

STORED PRODUCTS INSECTS

RED-LEGGED HAM BEETLE (Necrobia rufipes) - VIRGINIA - Severely damaged cured hams not wrapped and bagged properly in Richmond. (Matheny).

BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - Hippodamia convergens in large numbers on cotton, corn and alfalfa in Safford area, Graham County. (Ariz. Coop. Rept.). WISCONSIN - Increase on alfalfa infested with pea aphid. (Wis. Wkly. Bul.). ILLINOIS - Average numbers per 100 sweeps: northwest 55, northeast 68, central 310, east 60, southwest 50 and southeast 125. (Ill. Ins. Rept.).

MISCELLANEOUS INSECTS

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Becoming more annoying. (Knowlton).

PERIODICAL CICADA (Magicalicada septendecim) - WISCONSIN - Mature nymphs emerging and tubes observed in Richland County where severe injury to orchard trees occurred 17 years ago. May cause damage this year in same area and may show up soon in southeastern area. (Wis. Wkly. Bul.).

BLACK CARPET BEETLE (Attagenus piceus) - MASSACHUSETTS - An unusually large number of complaints. (Bourne).

MORE IMPORTANT INSECTS - 1955 (additional report) - FLORIDA - Scales, whiteflies and mites on citrus and ornamentals; mosquitoes; subterranean termites; aphids; chinch bugs on lawns and turf; corn earworm; black turpentine beetle; rice weevil and fall armyworm.

LIGHT TRAP COLLECTIONS

Pseud. Agrotis Prod. Perid. Feltia Heliothis Protoparce Chor.
unipun. ypsilon ornith. marg. subt. zea viresc. sexta quinq. aux.

NORTH DAKOTA									
Fargo 6/1-7	265								594
KANSAS									
Wathena 5/28-6/4	17					2			1
Manhattan 6/8-9									7
Hays 5/30-6/2	2					5			2
Garden City 6/4-6						11			5
TEXAS									
Winter Haven 5/16-31				3		14			
Denton 5/16-31	7	3	13	9		27			
Waco 6/2-8	1		21	35	15	24			
ARKANSAS									
Hope 6/2-8	15	8		8		13			
Stuttgart 5/30-6/5	49	1		18		10			
Fayetteville 6/4-8	107	28		26		63			
LOUISIANA									
*Tallulah 6/2-8	17	23	92	103	83	454	16	43	1
Baton Rouge 6/2-8		7	80	10	102	33			
MISSISSIPPI (Counties)									
Coahoma 6/2-8	1395	59	13	593	1	897			
Humphreys	309	42	17	342	2	309	4		
Lauderdale					2	57			
Marshall	1720	132	30	349	111	1680	14		
Oktibbeha	46	18	62	41	10	82	5		
*Washington 6/1-7	2802	69		1224		327			
TENNESSEE (Counties)									
Madison 5/29-6/4	48					16			2
Lawrence								12	8
Maury				8		8		15	27
Robertson	160			16		32		6	7
Cumberland	5	1		1		14			
Knox	22	14	10			68			2
Greene	10		6	4		12		6	23
Blount	12	6	12			8		3	6
Johnson	4	20	8			20			
GEORGIA (Counties)									
Tift 5/27-6/2	43	67	81		262	112	269	17	2
Spalding 5/26-6/1	3	4	9	11	36	48	8	4	5
FLORIDA									
Monticello 5/29					3	7			
Belle Glade 5/29					23				
Homestead 6/1								3	
Lakeland 5/28	3				42	8		9	
Bradenton 5/18-28		1	3		21				
Quincy 6/4			2		7	9		2	
SOUTH CAROLINA (Counties)									
Charleston 5/21-27	2	2	4	4	14	5	1	7	
Florence 5/20-6/1	8	16	11	3	18	112	1	6	2
Oconee 6/3-9	6	9	26	14	10	24	3	5	
NORTH CAROLINA (Counties)									
Duplin 6/6-7			1			7		3	2
Johnston 6/6-7		1							1
VIRGINIA (County)									
*Pittsylvania 5/27-6/2								23	327
MARYLAND (County)									
Montgomery 6/1-7	5	2		2					
PENNSYLVANIA									
State College 6/2-9	123	28							
OHIO (County)									
Athens 5/25-31	17	18							
INDIANA (Counties)									
Lawrence 5/29-6/5	233	8	3	33		1			
Tippecanoe 6/1-6	377	2		44					
ILLINOIS									
Urbana 6/1-7	765	5	1	250		6			

Other collections: Georgia - (Spalding County, 5/26-6/1): Empoasca fabae, 8.

*Three traps Tallulah, La. and Pittsylvania Co., Va.; Two traps Washington Co., Mississippi.

ADDITIONAL NOTES

NEW YORK - SPITTLEBUGS in numbers throughout State. Infestation this year appears to be greatest in years. EUROPEAN CHAFER - New infestation located near Oswego. Adults flying June 8, Wayne County. MEXICAN BEAN BEETLE on beans in Schenectady County. FRUIT TREE LEAF ROLLER in large numbers in few untreated orchards in Dutchess County, found readily in most orchards in Columbia County. WHITE APPLE LEAFHOPPER plentiful in Onondago County; also in Wyoming County following treatment. RED-BANDED LEAF ROLLER larvae feeding, Onondago County. Rather general and plentiful in Monroe County, and larvae easily found in Wayne County. (Wkly. Rept.).

ARKANSAS - Nymphs of GRASSHOPPERS (mostly Melanoplus sp.) locally heavy in southeast and south central Arkansas. As high as 25-30 per square yard on clover in upper Desha and lower Arkansas Counties. Some "ragging" of cotton next to fence rows and ditch banks in local areas. SPOTTED ALFALFA APHID counts variable in Lafayette, Miller and Howard Counties; 2 to 27 per stem. Many winged forms. In Chicot County stand averaged 350-500 aphids per sweep; some damage. RICE WATER WEEVIL adults appeared in heavy numbers in local areas over eastern half of State. SUGARCANE BEETLE continues to cause damage to growing corn. Larvae of A WEEVIL have damaged soybeans in Poinsett County; stands ruined some cases. BAGWORM attack has been heavy on many ornamentals and shade trees over the State. ELM LEAF BEETLE populations are building up on elm in the Arkansas River Valley and north to Randolph County. BOLL WEEVIL counts on young cotton variable, with high counts of over 2,000 adults per acre in Chicot County and over 1,500 per acre in Hempstead County. None or light elsewhere. BOLLWORM activity low, with larvae and eggs found only occasionally in Ashley County. THRIPS moderately heavy in the Jefferson, Lincoln, Desha County area and also north of Arkansas River in east central Arkansas. (Warren, Barnes).

IDAHO - ALFALFA WEEVIL extremely numerous in Owyhee County; considerable loss to hay crops. Many pupating. CABBAGE MAGGOTS lower than normal on crucifers in western Ada County. CLOVER SEED CHALCID adults numerous in red clover stands Owyhee County. GRASSHOPPER populations approximately 50 per square yard on bitterbrush nursery plantings and surrounding range land, east of Banks. Populations 90 percent Camnula pellucida and 10 percent Melanoplus bivittatus. LESSER CLOVER LEAF WEEVIL - about 3 percent of red clover heads infested with larvae in stands of Owyhee County. SPIDER MITES heavy and general in nearly all alfalfa and clover seed fields of Gooding County. Heavy injuries expected unless controlled immediately. WIREWORMS have severely damaged a 10-acre field of beans in Jerome County, 25 percent loss. (Portman).

IOWA - GRASSHOPPERS - differential grasshoppers continue to hatch. In some areas 100-300 nymphs per square yard in fence rows, roadsides and ditches. SOIL INSECTS continue to cause damage. CORN ROOT APHID reported in light infestations in Union County. ARMYWORMS found in heavy

stands of oats and brome in central Iowa. EUROPEAN CORN BORER developing rapidly. In south Iowa pupation 90 percent, in central 98 percent, in north 90 percent completed. Six egg masses per 100 plants in 24 inch corn in Boone County on June 9. SPITTLEBUG reported from Story County, central area. Causing considerable concern in eastern Iowa. Alfalfa and clover there with 10-50 spittle masses per 100 stems. PEA APHIDS range from 10-100 per sweep from north to central Iowa, respectively. LADY BEETLE larvae abundant in fields. RED-BANDED LEAF ROLLER doing serious damage on apples in central area. (Harris).

WEATHER FOR THE WEEK ENDING JUNE 11, 1956

The week was unseasonably cool in the Pacific States and western Nevada and east of a line joining Detroit, Michigan; and Houston, Texas; but relatively warm elsewhere. Temperatures averaged as much as 3° below seasonal levels in the Pacific Northwest and as much as 6° below along the middle Atlantic Coast, but ranged from 9° to as much as 12° above seasonal levels in the northern Great Plains. The week's only freezing occurred in northwestern Nevada and eastern Oregon on June 5, with the passage of a cold front and an influx of cool Pacific air. Winnemucca, Nevada, had a low of 24° and Burns, Oregon, one of 28°.

The week was one of rising temperatures, however, with maximum temperatures of 90° to over 100° prevailing in the Far Southwest throughout the week. By the end of the period the area with maximum temperatures of 90° or above had spread throughout the South and northward along the Canadian Border from Montana to Minnesota. Extreme maximums, occurring at the end of the period, ranged from 111° at Yuma, Arizona, to 101° at Huron, South Dakota, and 99° at many other stations in the northern Plains and upper Mississippi Valley including Williston and Bismarck, North Dakota, Pierre, South Dakota, and Minneapolis, Minnesota. This was the warmest week this season in most of the area between the Continental Divide and the Mississippi. International Falls, Minnesota, reported 98°, the highest there during the station's 14-year record. A low pressure trough brought moderate to heavy rain to the north Pacific Coast at the beginning of the week, and light to moderate showers to the central and northern Great Plains on the 5th and 6th and the central and upper Mississippi Valley on the 6th and 7th. Showers fell in the Northeast and Southeast over the weekend. The Far Southwest and Rio Grande Valley received no rain at all, and amounts were very light in most of the remainder of the area west of the Great Plains except in the extreme north. Drought is reported to be developing rapidly over Texas, and rain is needed in the Gulf States. (Summary Supplied by U. S. Weather Bureau).

SURVEY METHODS

Uniform Survey Procedure Approved by
The Lake States Forest Insect Survey Committee - 1956

SARATOGA SPITTLEBUG NYMPHAL APPRAISAL SURVEY

PURPOSE:

These surveys are conducted to obtain data on nymphal populations of the Saratoga spittlebug so the needs for insecticidal control measures can be determined. They will ordinarily begin about June 15, in northern Wisconsin and Michigan, although weather conditions may necessitate setting the date as much as a week earlier or later. In any case the beginning date will be when most of the nymphs are in the later instars, and the survey should be completed before transformation to the adult stage begins.

INSTRUCTIONS:

Sample Size

Twenty sample plots shall be established per 100 acres of plantation. The individual plot encompasses an area of 1/10 milacre delimited by a portable square wooden frame (25 inches on a side, inside dimension). All plantations less than 50 acres will have 10 plots.

Plot Location

The plots must be evenly distributed according to lines predetermined on a plantation map. No plot should fall less than 2 chains from the edge of a plantation or a transecting road. The examiner will pace off the required distances and drop the plot frame immediately in front of him in an unbiased manner. The frame must not be moved from this point unless one or more of the following conditions are encountered:

1. No trees within 3 feet of the plot. --Always locate the plot frame so that it lies within 3 feet of the crown of a tree.
2. No ground cover. --If the trees have shaded-out the low-growing plants, move the frame to a more open area. If no suitable spot can be found within 1 chain of the predetermined sample station, note this fact on the field form and move on to the next station.
3. Trees over 15 feet or less than 2 feet in height. --If either of these conditions prevails, record the fact and move to the next station.

Alternate Host and Nymphal Count

At each sample station, each individual host plant and each nymph within the confines of the frame is recorded. To detect nymphs, carefully press away the ground litter from the root-collar of the plant and look for the characteristic spittle mass. If a mass is observed, pull it apart and count the nymphs. If as many as 10 nymphs are found in any one plot, it is not necessary to go on counting, simply note this fact and move on. Any additional alternate host conditions perceived by the examiner will be helpful in interpreting the data. For instance, if the "Others" column on the field form represents mainly hawkweed, or bracken fern, etc., a note should be made concerning its abundance.

Tree Size and Density

The average height of the trees, estimated to the nearest foot, and the average number of trees per acre must be recorded. The number of branch whorls on a representative (average sized) tree and any abnormal appearance of the trees such as deformation, flagging, etc., should be recorded.

The following points detail the use of the damage prediction table:

1. From the nymphal survey field form, the average number of tree units in the plantation is determined by obtaining the product of the average tree height (in feet), the average number of living branch whorls, and the average number of stems per acre. These three factors are determined by the observer in the field.

2. On the damage prediction table, the number of tree units is located in the column on the left and a straightedge placed across the table at this level.
3. From the nymphal survey field form, the total number of nymphs present in the first 1/10-milacre plot is determined.
4. This number is located in the top row of the damage prediction table and read downward to the point of intersection with the straightedge. The infestation level on the 1/10-milacre plot is then designated (heavy, medium, or light) according to the infestation zone indicated by the table.
5. The infestation levels of all the rest of the plots are determined by examining the field forms and going through the steps described above.
6. If 30 percent or more of the plots fall in the heavy infestation zone, the plantation is slated for immediate control.

The infestation level in a particular plantation may not be high enough to warrant immediate control, but it may be high enough to anticipate the need for control the following year. For instance, if 20 percent of the sample plots were found to be heavily infested and an additional 10 percent moderately infested, it is only logical to assume that after the insect has gone through the propagative stage, the population will have increased enough to constitute a heavy infestation. Therefore, a plantation may be designated as requiring a nymphal survey and possible control the following year if 30 percent or more of the sample plots are moderately infested. In this manner both the operational and appraisal aspects of spittlebug surveys may be logically and effectively combined in a single spring nymphal survey.

Infestation Classification

The following empirical classification of tree damage on the basis of the feeding scar density on the xylem of the 2-year-old internodes has been established:

<u>Feeding scars per 10 cm.</u>	<u>Tree damage level</u>
0 to 10	Light
10 to 30	Medium
30+	Heavy

In order to classify an infestation on the basis of the spring nymphal population, the damage potential can be predicted according to the following relationship:

$$X = K \frac{A}{B}$$

X = number of feeding scars per 10 cm. of twig to be expected from the resulting adult population.

A = number of nymphs per 1/10 milacre.

B = number of tree units per acre = (number of trees per acre) x (average height of trees in feet) x (average number of living branch whorls per tree).

K = 17 (dimensionless constant).

A table showing the relationship between the three pertinent factors has been developed to simplify the classification of a particular nymphal population.

H. G. Ewan, Forest Service, U.S. D. A.

ALTERNATE HOST AND NYMPHAL SURVEY FOR SARATOGA SPITTLEBUG

FIELD FORM*

National Forest _____ Ranger District _____ Plantation Code No. _____

Location: T. _____ R. _____ Sec. _____ Acreage _____

Date _____ Observer _____

Sample number	Number nymphs per stem	Number Alternate		Host Stems	Sample number	Number nymphs per stem	Number Alternate		Host Stems
		Sweet-fern	Rubus spp.				Sweet-fern	Rubus spp.	
1	0				6	0			
	1					1			
	2					2			
	3					3			
	4					4			
2	0				7	0			
	1					1			
	2					2			
	3					3			
	4					4			
3	0				8	0			
	1					1			
	2					2			
	3					3			
	4					4			
4	0				9	0			
	1					1			
	2					2			
	3					3			
	4					4			
5	0				10	0			
	1					1			
	2					2			
	3					3			
	4					4			

Average number trees per acre: _____ Average number of branch whorls _____

Average height of trees (to nearest foot): _____

Remarks:

*A continuation sheet is used when there are 20 sample plots.

T.

R.

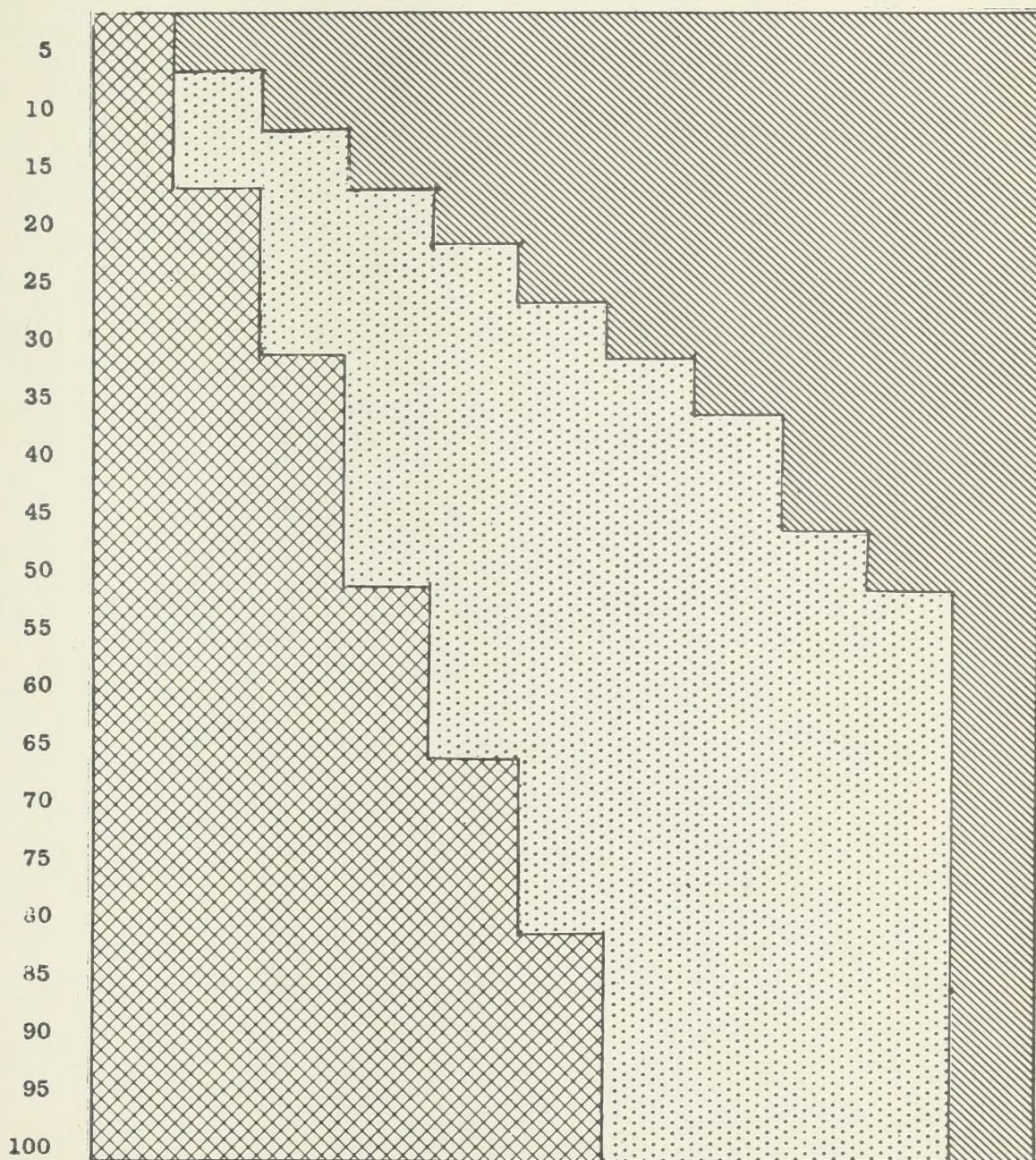
Sec.

Saratoga Spittlebug Damage Prediction Table

Tree $\frac{1}{2}$ Units (in) (1000's)

Nymphs per 1/10-milacre

0 1 2 3 4 5 6 7 8 9 10



$\frac{1}{2}$ A product of the average tree height (in feet), the average number of living branch whorls, and the average number of stems per acre.

-- HEAVY

-- MEDIUM

-- LIGHT



USDA, AGRICULTURAL RESEARCH SERVICE
ENTOMOLOGY RESEARCH BR
FRUIT INSECTS SECTION
3-7-55 PLANT INDUSTRY STATION
IPS BELTSVILLE, MD

